



# BEeS

## The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Seville  
22-24/05/23



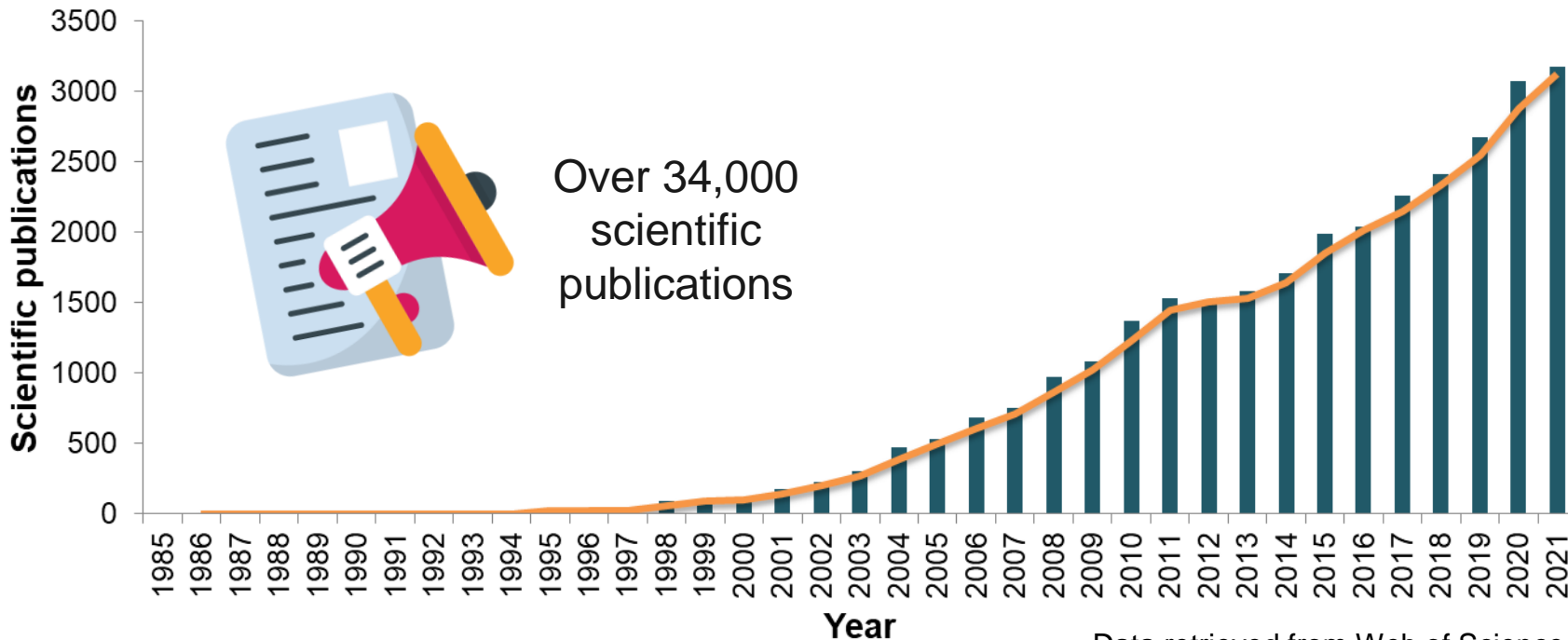
Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective



*eScience solutions to address the known unknowns of invasion biology*

Di Muri C.\*, Arvanitidis C., Basset A.

## The growing scientific interest on IAS



Data retrieved from Web of Science

## The publication landscape of invasion science

12,944  
Ecology



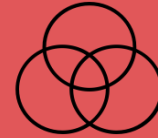
4,777  
Marine Freshwater Biology



2,432  
Zoology



1,667  
Multidisciplinary Sciences



1,472  
Forestry



6,361  
Biodiversity Conservation



3,741  
Plant Sciences



1,433  
Evolutionary Biology



1,061  
Biology



954  
Oceanography



5,125  
Environmental Sciences



2,836  
Entomology



1,251  
Fisheries



828  
Agronomy



783  
Limnology



## **The LifeWatch ERIC Internal Joint Initiative**

### **5 case studies:**



1. Spreading scenarios through remote sensing data: the case of ***Ailanthus altissima***;



2. Early-detection and monitoring of marine IAS: the **ARMS** programme;



3. Ecosystem vulnerability to alien species and their cumulative impacts on **Biotopes**;



4. An alert model reporting tool to identify alien species via eDNA **metabarcoding**;



5. **Functional biogeography** of invasive species through stable isotope analysis.

## **Metadata Catalogue – 108 resources developed**

**5 Workflows**



**38 Services**



**65 Datasets**



**5 Virtual Research Environments**



[www.lifewatch.eu/internal-joint-initiative/workflows/](http://www.lifewatch.eu/internal-joint-initiative/workflows/)


## Scientific outcomes



### Alien and native species in Italian marine and transitional waters

 Cristina Di Muri, Tamara Lazic,  Ilaria Rosati, Cataldo Pierri,  Angela Boggero, Giuseppe Corriero,  Alberto Basset

10.3897/BDJ.11.e101464

 27-04-2023




### Individual and population-scale carbon and nitrogen isotopic values of *Procambarus clarkii* in invaded freshwater ecosystems

 Cristina Di Muri,  Paloma Alcorlo, Roberta Bardelli, Jordi Catalan, Esperança Gacia,  Maria Teresa Guerra,  Ilaria Rosati, David Soto, Salvatrice Vizzini, Giorgio Mancinelli

10.3897/BDJ.10.e94411

 20-10-2022

### An individual-based dataset of carbon and nitrogen isotopic data of *Callinectes sapidus* in invaded Mediterranean waters

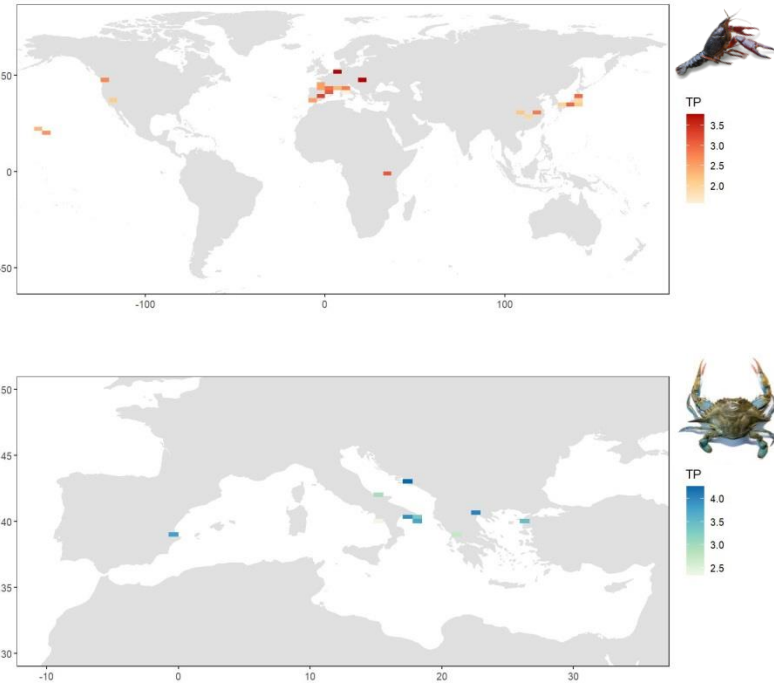
 Cristina Di Muri,  Ilaria Rosati, Roberta Bardelli, Lucrezia Cilenti, Daniel Li Veli, Silvia Falco, Salvatrice Vizzini,  George Katselis, Kosmas Kevrekidis, Luka Glamuzina, Giorgio Mancinelli

10.3897/BDJ.10.e77516

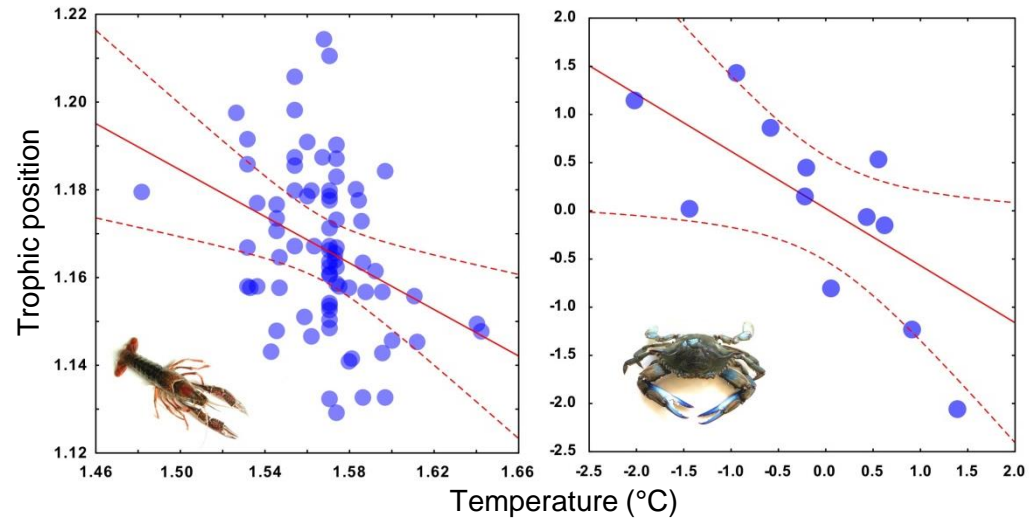
 25-01-2022



## Scientific outcomes



### Temperature affects the trophic position of invasive crustaceans



Di Muri et al., 2022. The validation case on invasive crustaceans of the LifeWatch ERIC Internal Joint Initiative: State of the art and next steps forward. *Front. Environ. Sci.*

# SO FAR, SO GOOD...

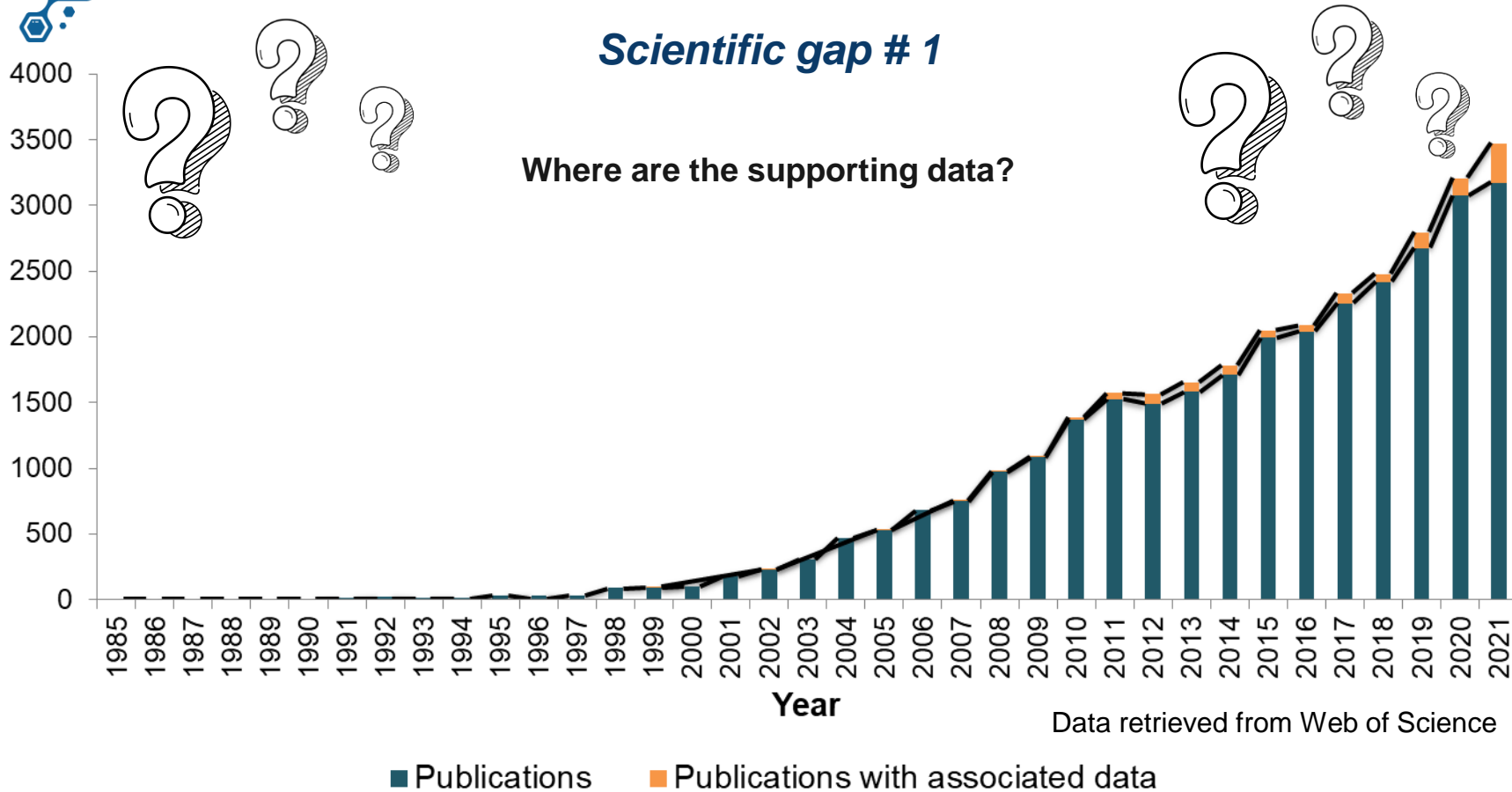


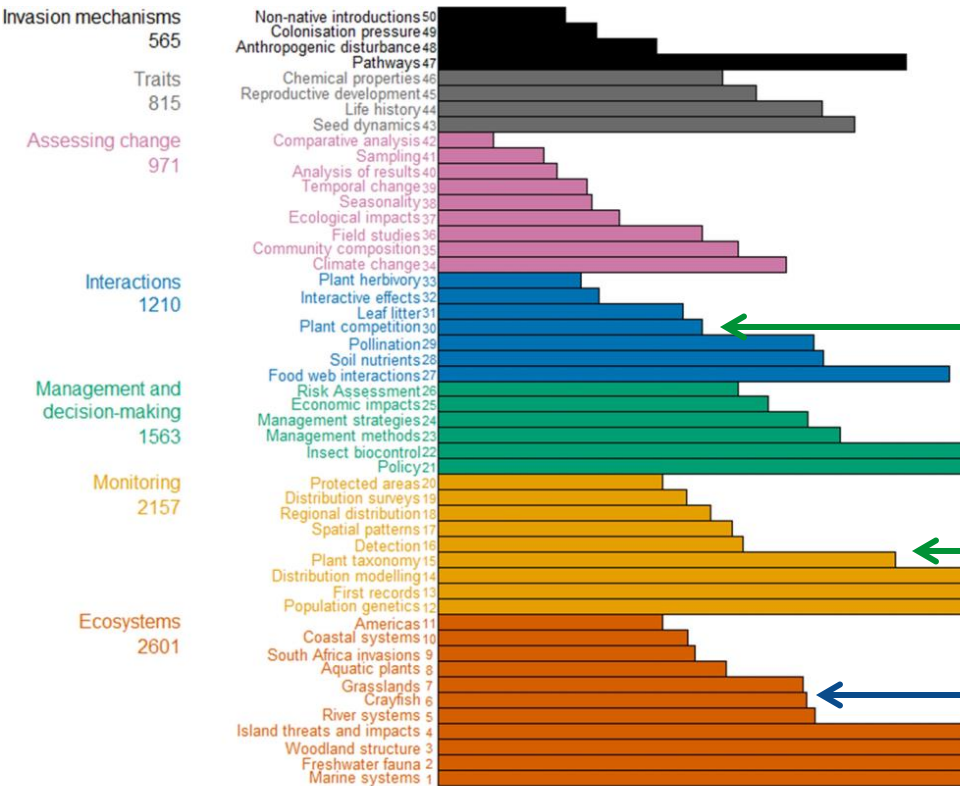
# BUT... MIND THE GAPS!



## Scientific gap # 1

Where are the supporting data?





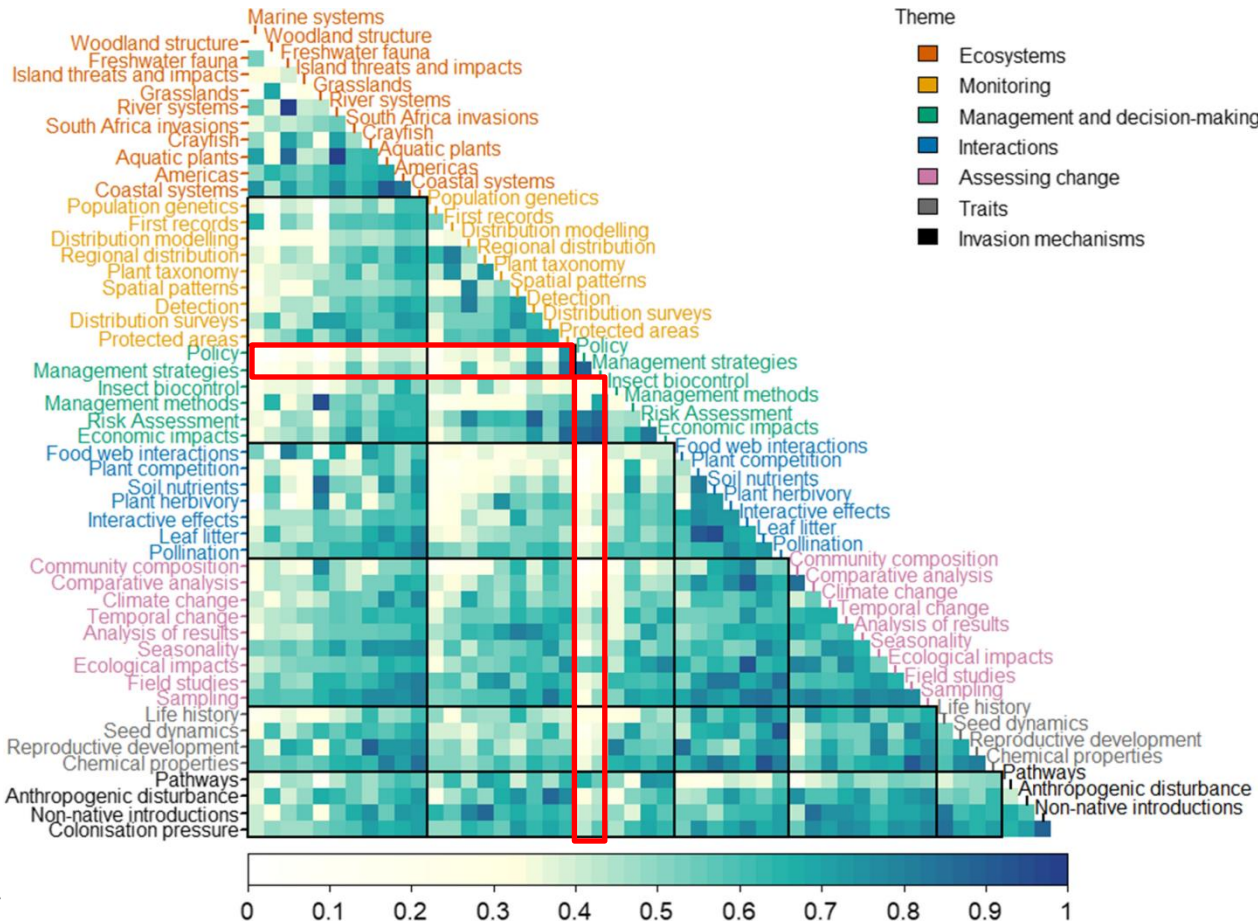
## Scientific gap # 2

Existing biases in the scientific literature of IAS are associated to different research topics, taxonomic groups and geographical areas.

Stevenson *et al.*, 2023.  
Synthesising 35 years of invasive non-native species research. *Biol. Invasions*

## Scientific gap # 3

Lack of multidisciplinary



Stevenson *et al.*, 2023.

Synthesising 35 years of invasive non-native species research. *Biol. Invasions*

Promote FAIR and Open Science practices



Sustain research facilities

**eScience tools and Research Infrastructures**

Increase computational power



Encourage the networking



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Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective



**UNIÓN EUROPEA**  
Fondo Europeo de Desarrollo Regional  
Una manera de hacer Europa

Thank you! | [www.lifewatch.eu/bees-2023](http://www.lifewatch.eu/bees-2023)



## References:

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